



SEVERE ACUTE RESPIRATORY SYNDROME

GUIDELINES AND RECOMMENDATIONS

Interim Guidelines and Recommendations: Prevention, Identification and Management of Suspect & Probable Cases of Severe Acute Respiratory Syndrome on Cruise Ships

In response to outbreaks of severe acute respiratory syndrome (SARS), international and domestic conveyances, including cruise ships, have been asked to report suspect and probable cases of SARS to U.S. public health authorities. Because of varied travel itineraries of the passengers and crew members, long periods of travel with extensive interaction among passengers and between passengers and crew members, and the densely populated shipboard environment, cruise ships can provide fertile ground for the introduction and spread of communicable diseases. The cruise industry and the Centers for Disease Control and Prevention (CDC) have a shared interest in preventing the introduction of SARS on cruise ships, controlling its spread if inadvertently introduced, and protecting the health of passengers and the crew members who live and work on the ship.

The definition of SARS may evolve; the most current definitions for suspect and probable cases of SARS can be found at www.cdc.gov/ncidod/sars/casedefinition.htm. The list of areas with SARS may also change, and updated information can be found on the websites of CDC

(www.cdc.gov/travel/other/acute_resp_syn_multi.htm) and the World Health Organization (<http://who.int/en/>)

The primary way that SARS appears to spread is by close person-to-person contact. Most cases of SARS have involved people who cared for or lived with someone with SARS, or had direct contact with infectious material (for example, respiratory secretions) from a person who has SARS. Potential ways in which SARS can be spread include touching the skin of other persons or objects that are contaminated with infectious droplets and then touching your eye, nose, or mouth. This can happen when someone who is sick with SARS coughs or sneezes droplets onto themselves, other persons, or nearby surfaces. It is also possible that SARS can be spread more broadly through the air, by fomite or fecal-oral transmission, or by other means that are currently not known.

This interim guideline is designed to assist cruise ships' medical staff in developing programs to prevent, identify and manage suspect and probable cases of SARS on board ships. The document contains three sections: 1) pre-embarkation screening of passengers and crew and visitors for suspect SARS cases; 2) identification and management of a suspect/probable SARS case during the voyage; and 3) arrival in the United States of a ship with a suspect/probable SARS case. This document and all the materials referenced in it can be found on the CDC SARS website: www.cdc.gov/ncidod/sars/. The ship's medical staff should review the content on www.cdc.gov/ncidod/sars/clinicians.htm to become familiar with SARS and its current prescribed management.

CDC recognizes that the cruise lines may elect to implement additional vessel-specific policies and procedures which may be more restrictive. Quarantine practices such as restricting the movement of close contacts, in addition to the isolation of persons with suspect or probable SARS, have varied widely among areas with SARS. The legal and public health recommendations of the jurisdiction in which the ship is operating should be reviewed. For example, at present, CDC recommends that during the 10-day monitoring period, close contacts of persons with suspect or probable SARS are not subject to limitations

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in their movement or interaction with the public unless symptoms of SARS develop. These contacts should be provided with the information contained on www.cdc.gov/ncidod/sars/exposuremanagement.htm. However, CDC recognizes that public health authorities in some jurisdictions may recommend the use of quarantine measures to restrict the movement of close contacts. These laws and recommendations must be respected.

1. Pre-Departure Screening of Passengers, Crew Members, and Visitors

Before boarding the ship, all passengers, crew members and visitors should receive and complete a short pre-departure SARS Screening Form (a sample form is included as Attachment A [www.cdc.gov/ncidod/sars/pdf/cruisecscreenform.pdf]). The form contains three questions regarding: travel history in the last 10 days to/through an area with current or recently documented or suspected community transmission, close contact with a person with suspect or probable SARS in the last 10 days, and, among such persons, the presence of any symptoms consistent with SARS.

The following approach is recommended for pre-departure screening and infection control among passengers, crew members and visitors:

A. Persons who report travel to area with current or recently documented or suspected community transmission of SARS within the last 10 days

Passengers, crew and visitors who have traveled to an area with current or recently documented or suspected community transmission should be provided with information about SARS and should be instructed to seek medical attention immediately if they develop any symptoms of SARS (passive surveillance). Additional guidelines for the management of persons with suspect or probable SARS are described below. The list of areas with current or recently documented or suspected community transmission is available at www.cdc.gov/ncidod/sars/casedefinition.htm.

B. Persons who report that they may have been exposed to a person with suspect or probable SARS

Passengers, crew members or visitors who may have been exposed to SARS through close contact with a probable or suspect SARS case should follow CDC guidelines for persons who may have been exposed to SARS (www.cdc.gov/ncidod/sars/exposuremanagement.htm). These guidelines recommend that persons who may have been exposed to SARS through close contact should be vigilant for fever or respiratory symptoms over the 10 days following exposure.

If the person boards the ship, the ship's medical staff should conduct active surveillance of these persons (passengers and/or crew members) for 10 days following exposure by documenting their temperature twice a day and asking about the development of respiratory symptoms (shortness of breath, difficulty in breathing, or cough). If the person disembarks before the end of the 10-day post-exposure surveillance period, the person should be given information about SARS, instructed to be vigilant about the development of symptoms and informed to seek a health care evaluation if symptoms occur.

C. Persons who report having any symptoms consistent with SARS and a history of travel to an area with community transmission or possible exposure to SARS through close contact

Passengers, visitors or crew members who have traveled to an area with community transmission or may have been exposed to SARS through close contact should be screened to determine if they have any clinical symptoms consistent with SARS. If any clinical features consistent with SARS are reported, the

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person should undergo a medical evaluation to determine if the person meets the suspect SARS case definition. With respect to the evaluation, the following steps should be taken.

If a symptomatic passenger, visitor or crew member is identified, the following steps should be taken:

- i. **Isolate the person while awaiting evaluation.** Keep him/her away from public areas to minimize contact with other people. Place a surgical mask on the ill person. Careful hand hygiene is essential. As a general rule, it is good practice to wash hands frequently with soap and water; if hands are not visibly soiled, alcohol-based hand rubs may be used as an alternative. The medical staff conducting the evaluation should follow the precautions described on the website: www.cdc.gov/ncidod/sars/triage_interim_guidance.htm. If the person does not meet the case definition for suspect SARS, the person should be given a health alert card and instructed to seek medical attention immediately if s/he develops any symptoms of SARS.
- ii. **Contact CDC Quarantine Station.** If the person meets the case definition for suspect SARS, the nearest CDC Quarantine Station (field offices of the Division of Global Migration and Quarantine, CDC) should be contacted by the person performing the evaluation. The local health department should also be notified by the Quarantine Station or the person performing the evaluation. If in need of immediate assistance, contact the Division of Global Migration and Quarantine in Atlanta through the CDC Emergency Operations Center: 770-488-7100. A list of Quarantine Stations and their contact information can be found on www.cdc.gov/ncidod/dq/quarantine_stations.htm. A list of health departments is available on www.cdc.gov/other.htm#states.
- iii. **Refer the person with suspected SARS to a health-care facility.** CDC Quarantine Station and local health authorities will assist with the referral of the person with suspected SARS to a health-care facility. Before the ill person is transported, the health-care facility should be alerted to the need for appropriate precautions to prevent transmission to others in the healthcare setting. CDC recommendations for health-care facilities receiving persons with suspected SARS can be found at www.cdc.gov/ncidod/sars/infectioncontrol.htm and www.cdc.gov/ncidod/sars/triage_interim_guidance.htm.
- iv. **Denied or Delayed Boarding.** Persons who meet the case definition for suspect SARS should be denied boarding (case definition of SARS is available at www.cdc.gov/ncidod/sars/casedefinition.htm). Persons who are symptomatic but do not meet the case definition for suspect SARS should have their symptoms monitored 72 hours prior to being allowed to board the ship. If symptoms improve or resolve within 72 hours after first symptom onset, the person may be allowed to board the ship. These recommendations may change; the most updated guidelines are available at www.cdc.gov/ncidod/sars/exposuremanagement.htm. If the illness does not progress to meet the case definition, but the individual has persistent fever (see above guidelines for definition of fever) or unresolving respiratory symptoms, the person should not be allowed to board the ship and infection control precautions should be continued for an additional 72 hours, at the end of which time a clinical evaluation should be performed. If case definition criteria are not met, infection control precautions can be discontinued after consultation with local public health authorities and the evaluating clinician. A decision about boarding the ship can also be made at this time. Factors that might be considered include the nature of the potential exposure to SARS, nature of contact with others in the residential or work setting, and evidence for an alternative diagnosis.

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2. Guidelines for Persons Who Develop Acute Respiratory Illness During the Voyage

Persons who develop an acute respiratory illness should be managed and investigated by the onboard medical staff. If the ship's physician suspects that the patient has SARS, the following protocol should be adopted:

A. Isolation of patients suspected to have SARS. If the ship's physician suspects the patient has SARS, the medical staff should immediately place him/her in respiratory isolation in the infirmary (case definition of SARS is available at www.cdc.gov/ncidod/sars/casedefinition.htm). If such a facility is not available on board, the patient should be isolated in a separate cabin or quarters with, if possible, an independent ventilation system until the patient can be disembarked, transported to a health-care facility, and placed in respiratory isolation. In advance of evaluation, healthcare personnel should be informed that the individual may have SARS so arrangements can be made, as necessary, to prevent transmission to others in the healthcare setting.

- i. Persons who may have been exposed to SARS and are symptomatic (fever OR respiratory symptoms) within 10 days after exposure but do not meet the case definition for SARS.**
 - a.** These persons should have their symptoms monitored for 72 hours as described in guidelines available at www.cdc.gov/ncidod/sars/exposuremanagement.htm. The person should limit interactions outside the cabin and should not go to work or other public areas. In addition, the person should use infection control precautions to minimize the risk for transmission (www.cdc.gov/ncidod/sars/ic-closecontacts.htm) and continue to measure temperature twice daily.
 - b.** If symptoms improve or resolve within 72 hours after onset of first symptoms, the person may be allowed, after consultation with public health authorities, to return to work and other public areas, and infection control precautions can be discontinued. If the illness progresses to meet the case definition for suspected SARS (e.g., develop fever and respiratory symptoms), procedures described below should be followed. Infection control precautions should be continued until 10 days after the resolution of fever, provided respiratory symptoms are absent or improving. For persons who meet the case definition for SARS, infection control precautions should be continued until 10 days after the resolution of fever, provided respiratory symptoms are absent or improving, as described in www.cdc.gov/ncidod/sars/exposuremanagement.htm.
 - c.** If the illness does not progress to meet the case definition, but the individual has persistent fever (see above guidelines for definition of fever) or unresolving respiratory symptoms, the person should not be allowed to return to work or public areas and infection control precautions should be continued for an additional 72 hours, at the end of which time a clinical evaluation should be performed. If case definition criteria are not met, infection control precautions can be discontinued after consultation with CDC and the evaluating clinician. A decision about returning to work or public areas can also be made at this time. Factors that might be considered include the nature of the potential exposure to SARS, nature of contact with others in the residential or work setting, and evidence for an alternative diagnosis.

B. Notify public health officials for assistance. As required by law, the ship's authorities should report the illness immediately to the nearest U.S. Quarantine Station

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www.cdc.gov/ncidod/dq/quarantine_stations.htm. The Quarantine officials will notify state and local health departments and the appropriate CDC Headquarters officials. Quarantine officials will work with the cruise line and local and state health departments to assist with medical transportation of the patient upon arrival, disease control and containment measures, passenger and crew notification and surveillance activities, and disinfection procedures on board the ship. If the ship's arrival at a U.S. port is not imminent, quarantine health authorities will assist ship officials with the management and isolation of the patient and with carrying out the recommendations for other passengers and crew members. Persons who have contact with the patient while the ship is still at sea should observe the precautions described in www.cdc.gov/ncidod/sars/ic-closecontacts.htm. Healthcare providers should observe precautions described in www.cdc.gov/ncidod/sars/infectioncontrol.htm.

C. Conduct active surveillance among other passengers and crew members who may have had close contact with the patient. Passengers and /or crew who are close contacts (traveling companions, family members, cabin mates, certain co-workers or other close contacts as described below) of the patient should be provided with information about SARS and should have active, daily surveillance by the ship's medical staff for 10 days, as described above. Additional persons suspected to have SARS who are identified should be dealt with as described in Section 2. Persons who develop fever or respiratory symptoms once the voyage has begun should be isolated and guidelines described in www.cdc.gov/ncidod/sars/exposuremanagement.htm should be followed

Close contact is defined as having cared for, lived with, or had direct contact with respiratory secretions or body fluids of a person with suspect or probable SARS.

These contacts should be provided with the information contained on www.cdc.gov/ncidod/sars/exposuremanagement.htm. Quarantine practices such as restricting the movement of close contacts, in addition to the isolation of suspect SARS patients, have varied widely among areas with SARS. Be sure to be informed of the legal and public health recommendations of the jurisdiction in which you are operating. At present, CDC recommends that during the 10-day monitoring period, close contacts of the suspect SARS cases are not subject to limitations in their movement or interaction with the public. Unless symptoms of SARS develop, these passengers can return home on public conveyances. However, CDC recognizes that public health authorities in some jurisdictions may recommend the use of quarantine measures to restrict the movement of close contacts. These laws and recommendations must be respected.

D. Cleaning and Disinfection of Possible SARS-Contaminated Materials.

As soon as the patient vacates his/her cabin or living quarters, the area should be cleaned and disinfected according to a standardized approach to housekeeping and disinfection. The housekeeping staff should a) wear non-sterile gloves while cleaning; b) bag and promptly deliver the used linen and towels, while wearing gloves, directly to the ship's laundry for immediate washing according to the ship's standard laundry procedure; c) wipe down smooth, durable surfaces (for example, desks, doors, walls, floor, windows, and lavatory surfaces) and frequently touched objects (for example, light switches, doorknobs, dresser handles, and faucet handles) with an EPA-registered low- or intermediate-level chemical household germicide¹ and allow to air dry in accordance with manufacturer's instructions; d) handle ice

¹ **Note:** No disinfectant products are currently registered by the U.S. Environmental Protection Agency (EPA) specifically for the inactivation of the newly identified viruses associated with SARS. However, related viruses with physical and biochemical properties similar to those of the possible SARS agents are known to be readily inactivated by EPA-registered chemical germicides that provide low- or intermediate-level disinfection during general use.

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with proper technique to avoid contamination, so that buckets are not be transferred between cabins and are disinfected between groups of passengers; e) discard gloves if they become soiled or damaged and after cleaning is finished; and f) wash hands with soap and water immediately after removing gloves. Special cleaning of durable fabric materials (e.g., upholstery and carpet) is not indicated. A similar guideline for the cleaning of commercial aircraft on which a suspect SARS case was a passenger is available at www.cdc.gov/ncidod/sars/aircraftcleanup.htm. Interim guidelines for cleaning and disinfection of the SARS patient environment in the healthcare setting are available at www.cdc.gov/ncidod/sars/cleaningpatientenviro.htm.

- i. **Prevent aerosol generation during housekeeping.** Effective disinfection regimens are similar to procedures for norovirus outbreaks. These include the use of phenol-based compounds, accelerated hydrogen peroxide, potassium peroxymonosulfate, or a 1,000 ppm dilution of household bleach to disinfect passenger cabins, crew living quarters, and public areas on board the ship. These measures can also be effective against possible SARS agents that have thus far been identified. However, fogging devices to discharge aerosolized disinfectants should not be used because of possible re-aerosolization of infectious material. Similarly, housekeeping staff should not use vacuuming equipment or compressed air to clean possible SARS-contaminated facility and materials. The background information on this precaution can be found on www.cdc.gov/ncidod/sars/aerosolinfectioncontrol.htm.

3. Arrival in the United States with a Suspect or Probable SARS Case among Passenger or Crew

In the event of a death or ill person on board, the U.S. Foreign Quarantine Regulations (42 CFR, Part 71) require that prior to arrival the master of a ship destined for a U.S. port report the occurrence to the nearest CDC Quarantine Station. CDC's mission to prevent the introduction into the United States, transmission, or spread of a specified list of communicable diseases, has been expanded by Executive Order to include SARS. The Executive Order 13295 revising the list of quarantinable communicable diseases can be found at www.cdc.gov/ncidod/sars/executiveorder040403.htm.

CDC Quarantine and local health department officials will meet the arriving ship. If the suspect or probable SARS case has not disembarked at a previous port, the patient will be transported to a prearranged health-care facility. In advance of the evaluation, healthcare providers should be informed that the individual may have SARS so arrangements can be made, as necessary, to prevent transmission to others in the healthcare setting. Quarantine officials will work with the cruise line and the local and state health departments, as described in section 2B. If indicated, CDC Quarantine Station staff will work with the ship's crew to distribute health alert notices to disembarking passengers and will be available to answer questions.

Information about SARS that may be useful for distribution to passengers and crew members, if needed, includes the following: CDC Health Alert Notices, which is available in eight languages (www.cdc.gov/ncidod/sars/travel.htm#han); and general information about SARS (www.cdc.gov/ncidod/sars/factsheet.htm and www.cdc.gov/ncidod/sars/faq.htm) and hand hygiene (www.cdc.gov/handhygiene/).

For more information, visit <http://www.cdc.gov/ncidod/sars> or call the CDC public response hotline at (888) 246-2675 (English), (888) 246-2857 (Español), or (866) 874-2646 (TTY)

Disinfection agents (e.g., phenolic-based compounds, accelerated hydrogen peroxides, potassium peroxymonosulfate) that are especially effective against non-enveloped viruses such as norovirus are also effective against enveloped viruses such as coronaviruses.